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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/656,227 | 09/08/2003 | Soichiro Ogawa | 50340-156 | 1064 |

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Washington, DC 20005-3096

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| EXAMINER |
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ECHELMEYER, ALIX ELIZABETH

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| ART UNIT | PAPER NUMBER |
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1795

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| MAIL DATE | DELIVERY MODE |
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12/28/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|---------------------------|-----------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/656,227 | OGAWA, SOICHIRO | |
| | Examiner | Art Unit | |
| | Alix Elizabeth Echelmeyer | 1795 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 October 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. This Office Action is in response to the amendment filed October 11, 2007. Claim 1 has been amended. Claims 1-14 are pending and are rejected finally for the reasons given below.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2 and 5-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Hatano et al. (Japanese Publication Number 2001-143742).

Hatano et al. teach a mounting structure for a fuel cell stack in a vehicle (abstract).

Regarding claim 1, the structure includes endplates at either end of a fuel cell stack that permit the stack to expand and contract in the direction of lamination ([0037], [0058]).

In Hatano et al., a case is formed by two plates, an adaptor plate and a backup plate, which are fixed on either end of the fuel cell stack, 148 and 152 (Figure 7, [0035]). So, the adaptor plate and backup plate, which are fixed, are considered to be the "case" in the instant claims. These plates are different from the endplates, which, as discussed

above, move to permit the stack to expand and contract. The mechanism within the case that allows for the expansion and contraction is the disc springs 146 of Hatano et al., disposed between the stack and the plate 152 (Figure 7, [0036]). The adaptor and backup plates are fixed: they neither expand nor contract with the fuel cell stack.

With further regard to claims 1 and 14, the backup plate, 248, is attached to the vehicle by an installation plate, 31, which is taught to be fixed and contain rubber, 168 (see Figures 2 and 18; [0037], [0064]). This is considered the mounting structure to fix the fuel cell structure to the car ([0038]). The rubber-containing mounting is considered to be the elastic member.

As for claim 2, Hatano et al. teach that one of the endplates, attached to the piping device for supply and discharge of fuel gas, oxidant gas, and a cooling medium, moves to allow for expansion and contraction of the fuel cell ([0017]).

Regarding claims 5 and 6, Hatano et al. teach a bolt to secure the fixed backup plate to the mounting structure (Drawing 2, [0017]). It can be seen from the drawing that the bolt is perpendicular to the backup plate and passes through the portion that extends beyond the plane of the plate.

As for claims 7 and 8, Hatano et al. teach that the endplates are made of conducting material such as copper ([0035]).

Claim 9 of the instant application is drawn to the connection of two fuel cell stack units arranged in parallel. Hatano et al. teach this arrangement, including the same fluid supply/discharge system used at the movable end of the stacks (Drawing 1). One of ordinary skill in the art would recognize that, since there are two stacks, they would

inherently be connected either in series or in parallel, and would recognize that either arrangement could be selected based on the desired output of the fuel cell system.

Regarding claims 10 and 11, Hatano et al. also teach a bolt connect the piping device to the mounting structure (Drawing 2).

As for claim 12, Hatano et al. teach that the piping is connected to the conducting device, 180 ([0046], Drawing 16). Between the piping and the conduction device is an insulating plate, 84 ([0032], Drawing 16). The insulation plate is, for the purposes of this examination, considered to be part of the supply/discharge block, which includes all of the piping to supply and exhaust the reactants and coolant, and it is made of an electrically nonconductive material.

As for claim 13, Hatano et al. teach brackets for mounting the fuel cell stack to a car, including a rubber mounting ([0037]-[0038]).

Claim 14 requires the limitations of claim 1, which is rejected above. Further, Hatano et al. teach an installation plate, reference numeral 31 in drawings 2, 12 and 18, to which the bolts attach the fuel cell stack ([0037]).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hatano et al. in view of Chen (US Patent Number 6,274,258).

The teachings of Hatano et al. as discussed above are incorporated herein.

Hatano et al. teach the fuel cell system but fail to teach an expansion/contraction mechanism.

Chen teaches that the endplates of a fuel cell that is allowed to thermally expand and contract have scalloped edges to engage the inside surface of the outer case (abstract; Figure 1; column 4 lines 54-56). Further, fuel feed tubes are arranged to pass through the corrugations of the endplate (column 5 lines 55-59).

It would be advantageous to use the endplate of Chen in the fuel cell system of Hatano et al. because the scalloped edges, like depressions and projections of the instant application, engage the inner surface of the case and prevent rotation of the endplate. Further, the fuel feed tubes serve as a seal to prevent fuel from escaping the tubes before it is introduced to the stack.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the endplate of Chen in the fuel cell system of Hatano et al. in order to engage the inner surface of the casing and prevent rotation of the endplate.

Response to Arguments

6. Applicant's arguments filed October 11, 2007 have been fully considered but they are not persuasive.

Applicants argue that the rubber mount 30 is not fixed to the case. The examiner agrees; however, mount 31 is fixed to both the case (backup plate, 248) and the vehicle, see above. ("With further regard to claims 1 and 14, the backup plate, 248, is attached to the vehicle by an installation plate, 31, which is taught to be fixed and contain rubber, 168 (see Figures 2 and 18; [0037], [0064]).")

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alix Elizabeth Echelmeyer whose telephone number is 571-272-1101. The examiner can normally be reached on Mon-Fri 7-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Susy N. Tsang-Foster can be reached on 571-272-1293. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Alix Elizabeth Echelmeyer
Examiner
Art Unit 1795

aee


SUSY TSANG-FOSTER
SUPERVISORY PATENT EXAMINER